DoD Moving Toward Long-Term Goal of IM-Compliant Inventory

Acquisition Treatment of IM Now Defined Into Three Distinct Categories

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The acquisition treatment of insensitive munitions (IM) was the subject of a Jan. 26, 1999, memorandum from the Under Secretary of Defense for Acquisition, Technology and Logistics. It clearly stated the Department's long-term goal of having an "IM-compliant inventory." The overall intent of the memorandum was to focus scarce resources on forward-fit incorporation of IM-compliant technology rather than on back-fit of the existing (already produced) inventory.

As of Jan. 26, 1999, munitions are now defined into three categories with respect to acquisition treatment of Insensitive Munitions (IM).

Category 1

All new munitions or munitions being produced on production contracts signed after Jan. 26, 1999, shall be fully IM-compliant or have an approved IM waiver.

Category 2

On all munitions produced on production contracts signed on or before Jan. 26, 1999, the "Services should look for every feasible window of opportunity to insert IM technology into weapons continuing in production," which includes exercising production contract options, modification programs, or engineering change proposals.

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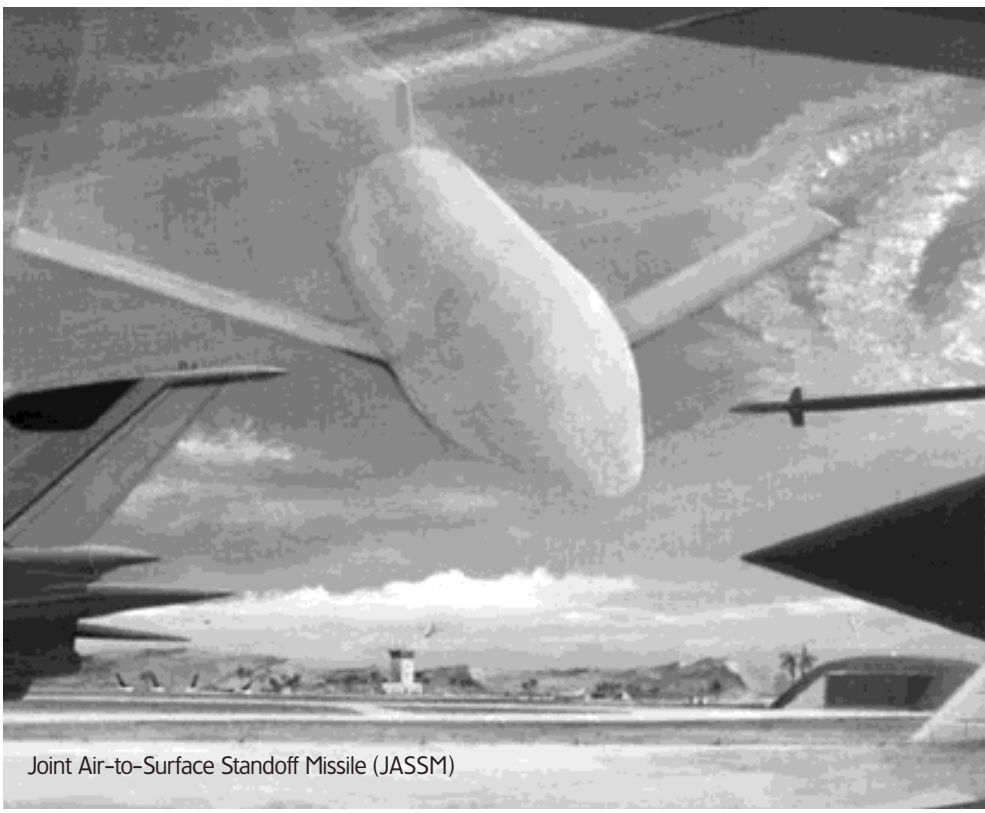

Joint Air-to-Surface Standoff Missile (JASSM)

Category 3

All munitions that have been produced (in the inventory, awaiting acceptance) on or before Jan. 26, 1999, are automatically exempt from satisfying IM requirements. Exemption is based solely on criterion of munitions items' state of production (whether they were physically produced); no exemption is provided based on the use of existing National Stock Number or Technical Drawing Package.

DoD IM Integrated Product Team

The DoD IM Integrated Product Team was established June 5, 1997, to address within DoD IM policy, requirements, programs, and issues nationally and internationally. The chairperson is Anthony J. Melita (Deputy Director, Strategic and Tactical Systems, Munitions) at (703) 695-1382 (DSN 225-1382), e-mail address **melitaaj@acq.osd.mil**.

Joint Services IM Technical Panel

The Joint Services IM Technical Panel (JSIMTP) was established May 4, 1999, to assist DoD offices with respect to IM technology matters and the IM waiver process. JSIMTP also provides an annual assessment on the state of IM Compliance of DoD Munitions Inventory to the

Illustration courtesy Lockheed Martin

OSD Office of Munitions and the Joint Staff J-4. The chairperson is Donald M. Porada at (703) 602-8728 (DSN 332-8728), e-mail address **poradadm@navsea.navy.mil**.

DoD Explosives Safety Board

The DoD Explosives Safety Board (DDESB) is responsible for Hazard Classification (HC) matters for DoD. Point of contact for HC is Dr. Jerry M. Ward (Director, Technical Programs Division, DDESB) at (703) 325-2525 (DSN 221-2524), e-mail address **jerry.ward@hqda.army.mil**; the DDESB action officer for HC is Brent Knoblett at (703) 325-1375 (DSN 221-1375), e-mail address **brent.knoblett@hqda.army.mil**.

Military Services

The Services have set up their own regulations, procedures, and processes for handling IM matters, including IM technology development and insertion, and IM compliance review and Service approval. Points of contact follow (name, telephone number, e-mail address):

Army

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Navy

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Air Force

Col. (S) Douglas C. Hayner, (703) 588-1201 (DSN 425), **Douglas.Hayner@pentagon.af.mil**.

Special Operations Command (SOCOM)

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Insensitive Munitions (IM) and Hazard Classification (HC)

IM and HC are specifically cited in DoD Regulation 5000.2-R. Personnel responsible for munitions (see Joint Publication 1-02 for definition) with respect to policy/executive review and oversight, program management, systems engineering, logistics, test and evaluation, international programs, and contracts need to be knowledgeable of the IM policy, requirements, and program.

IM save materiel and lives. IM definition (from STANAG 4439): "Munitions which reliably fulfill their performance, readiness and operational requirements on demand, but which minimize the probability of inadvertent initiation and severity of subsequent collateral damage to weapon platforms, logistics systems and personnel when subjected to unplanned stimuli." "Unplanned Stimuli" consists of thermal and mechanical impact threats of Fast Cook-Off (FCO), Slow Cook-Off (SCO), Bullet Impact (BI), Fragment Impact (FI), Sympathetic Detonation (SD), Shaped Charge Jet (SCJ), and Spall Impact (SI) as presented in MIL-STD-2105B. A Threat Hazard Assessment (THA) should be used to determine the precise application of these tests and the necessity for SCJ and SI or other additional tests. IM-compliant munitions will result in more safe, survivable munitions that have lower (better) Hazard Division Hazard Classifications and associated life cycle cost benefits. (See DoD Regulation 5000.2-R and Chairman, Joint Chiefs of Staff Instruction [CJCSI] 3170.01A.)

Explosives Safety. All munitions and explosives acquisition programs shall satisfactorily address explosives safety per DoDD 6055.9. Explosives safety management principles that ensure munitions and explosives are safely developed, manufactured, tested, transported, handled, stored, maintained, demilitarized, and disposed of shall apply in order to reduce the probability and the consequences of any munitions or explosives mishap. All munitions and explosives shall be hazard-classified in accordance with DoD 6055.9-STD using the procedures given in TB 700-2/NAVSEAINST 8020.8B/TO 11A-1-47/DLAR 8220.1 prior to release for operational service.

Insensitive Munitions. All munitions and weapons shall be designed to conform with insensitive munitions (unplanned stimuli) criteria and to use materials consistent with safety and interoperability requirements. Requirements shall be determined during the requirements validation process and shall be kept current throughout the acquisition cycle for all acquisition programs. Interoperability, to include insensitive munitions policies, shall be certified per CJCSI 3170.01A. Waivers for munitions/weapons, regardless of ACAT level and acquisition process (milestone) entry point, shall require Joint Requirements Oversight Council (JROC) approval, prior to committing production funds. The ultimate objective is to design and field munitions which have no adverse reaction to unplanned stimuli, analogous to Hazard Division 1.6 (TB 700-2/NAVSEAINST 8020.8B/T.O. 11A-1-47/DLAR 8220.1, "Department of Defense Ammunition and Explosives Hazard Classification Procedures").

CJCSI 3170.01A, "Requirements Generation System," Enclosure B, Page B-4, Paragraph 2.b(3) "Director, J-4, Joint Staff" states the following on IM:

"(b) Insensitive munitions. J-4 will certify that all ORDs for munitions, regardless of ACAT level, contain the requirement to conform with insensitive munitions (unplanned stimuli) criteria. As a minimum, these ORDs will contain the statement, "Munitions used in this system will be designed to resist insensitive munitions threats (unplanned stimuli)."

(c) Insensitive Munitions Waiver Requests. Insensitive munitions and cross-Service interoperability waiver requests require approval by the JROC. Waiver requests will be submitted to J-4 for review and then forwarded to the JROC secretariat for JROC consideration."

JASSM Subjected to Insensitive Munitions/Hazard Classification (IM/HC) Tests

One of the First Air Force/Navy Programs to Aspire to Both Full IM Certification and New Unit Risk 1.2 Hazard Classification

The Joint Air to Surface Standoff Missile (JASSM) system is an air-launched, conventional standoff weapon that can destroy heavily defended high-value, time-sensitive targets. Managed by Program Manager Terry Little, at Eglin AFB, Fla., the JASSM is being developed jointly for the U.S. Air Force and U.S. Navy for both land and carrier-based operations. Both Military Services require the missile to meet Insensitive Munitions (IM) requirements. The prime contractor is Lockheed Martin Integrated Systems (LMIS), Orlando, Fla., and the LMIS team is managed by Michael Inderhees. The program is in the 23rd month of the 62-month Engineering and Manufacturing Development effort. Production configuration missiles are being assembled on the production line at Troy, Ala., and flight-testing has begun.

The JASSM contains the WDU-42/B, a 1000-pound class, penetrating warhead with 240 pounds of AFX-757. AFX-757 is an extremely insensitive explosive developed by the Air Force Research Laboratory/High Explosives Research and Development Facility, Eglin AFB, Fla. The fuze is the FMU-156/B employing a 150-gram PBXN-9 booster. The warhead includes vents in the aft closure and a proprietary Thermally Reactive Retaining ring. The retaining ring releases at approximately 290 degrees Fahrenheit. This, in combination with the vents, provides for the expulsion of the main charge, which precludes excess pressure buildup and any reaction other than burning when exposed to hazardous stimuli.

The system is being subjected to a combination of MIL-STD-2105 Insensitive Munitions and United Nations Hazard Classification (Series 7) test requirements. A combined test approach has been implemented using a single test or test series to meet both the IM and the Hazard Classification (HC) requirements, with the more stringent requirements having precedence. Combined IM and HC testing helps reduce costs. JASSM is one of the first Air Force/Navy programs to aspire to both full IM certification and the new Unit Risk 1.2 Hazard Classification.

Testing progresses well for the program: Fast Cook-off and Slow Cook-off testing has been successfully accomplished at both the warhead and All-Up-Round levels. In two confined warhead Sympathetic Detonation tests, neither acceptor warhead (two in each test) detonated, giving the JASSM team high confidence that the system will pass its upcoming All-Up-Round Sympathetic Detonation tests without incident.

The warhead has been subjected to Bullet Impact and Fragment Impact tests without any reaction so far. The munitions configuration and lack of any reaction to fragment penetration during the warhead fragment impact tests have resulted in the U.S. Navy IM Office waiving that test for the All-Up-Round. Two final bullet impact tests at the warhead level and subsequent testing at the All-Up-Round level will complete the IM and HC test series. The JASSM project office and Lockheed Martin are driven to produce a truly insensitive round with the potential of attaining the first 1.6 and 1.2.3 Hazard Classifications in the U.S. munitions inventory.